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## Inferred risk

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'Inferred risk of cancer' describes situations in which there is exposure to an agent that may be carcinogenic ? the evidence comes primarily from laboratory studies involving animals so cancer risk to humans may not have been proven.

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Occupational exposure to chemicals for which some evidence of carcinogenicity is available

Situation	Occupational exposure to chemicals for which some evidence of carcinogenicity is available
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Exposure Various specific workers  
 Carcinogen Occupational exposure in dry cleaning;  
   Work involving  
   Acrylonitrile  
   Chloroform  
   DDT  
 Principal route of Inhalation and possibly dermal exposure  
 Target organ (or Lung & other sites including leukaemia  
 tumour type)  
 Comment Following exposure to many agents, attributing risk to single agents, most of which are categorized as possibly carcinogenic to humans, is difficult.

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## Agricultural work involving herbicides

Situation Agricultural work involving herbicides  
 Exposure Farmers, forestry workers  
 Carcinogen Chlorophenoxy and possibly other compounds  
 Principal route of Inhalation and dermal exposure  
 Target organ (or tumour Lymphoma  
 type)  
 Comment Lymphoma risk associated with agricultural work rather than specific chemicals.

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## Residential exposure to insecticides

Situation Residential exposure to insecticides  
 Exposure Occupants of sprayed houses  
 Carcinogen Many including Chlordane  
 Principal route of exposure Inhalation & dermal  
 Target organ (or tumour type)Breast and various sites investigated  
 Comment Increasingly better indicators of exposure are being used.

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## Environment exposure to DDT

Situation Environment exposure to DDT  
 Exposure Young women  
 Carcinogen DDT  
 Principal route of exposure Not clear  
 Target organ (or tumour type)Breast  
 Comment Exposure determined by levels of DDT in serum.

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## Heterocyclic amines in cooked meat and fish

Situation Heterocyclic amines in cooked meat and fish  
 Exposure Whole population  
 Carcinogen Multiple compounds including PhIP  
 Principal route of Ingestion  
 exposure  
 Target organ (or tumour Colo-rectum, prostate and possibly other sites  
 type)  
 Comment Impact of specific chemicals as mediating dietary-associated risk is difficult to resolve.

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## Chloroform in toothpaste

Situation Chloroform in toothpaste  
 Exposure Consumers of the product  
 Carcinogen Chloroform  
 Principal route of exposure Ingestion  
 Target organ (or tumour type)Not clear  
 Comment Usage discontinued in many countries.

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## Polybrominated biphenyls as flame retardant

Situation	Polybrominated biphenyls as flame retardant
Exposure	Children primarily and otherwise, whole population
Carcinogen	Polybrominated biphenyls
Principal route of exposure	Oral and dermal exposure of infants
Target organ (or tumour type)	Not clear
Comment	Relatively new compound Blood levels rising in general US population

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## Contaminated honey

Situation	Contaminated honey
Exposure	Consumers of the product
Carcinogen	Pyrrolizidine alkaloids
Principal route of exposure	Ingestion
Target organ (or tumour type)	
Comment	Dietary intake of extremely low concentrations

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## Pollutants and pesticide residues in breast milk

Situation	Pollutants and pesticide residues in breast milk
Exposure	Infants
Carcinogen	Various pesticides, polychlorinated biphenyls TCDD
Principal route of exposure	Oral exposure of infants
Target organ (or tumour type)	Not clear
Comment	Infants considered to be a most vulnerable population. Compounds may be detectable long after usage ceases.

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## Personal use of hair colouring agents

Situation	Personal use of hair colouring agents
Exposure	Users of hair dyes (predominantly women)
Carcinogen	Not clear; dye formulations subject to change over time.
Principal route of exposure	Dermal
Target organ (or tumour type)	Hematopoietic neoplasms Urinary bladder
Comment	Evidence of dye absorption.

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## Environmental exposure causing childhood leukemia

Situation	Environmental exposure causing childhood leukemia
Exposure	Children
Carcinogen	Multiple pollutants implicated
Principal route of exposure	Main route not clear, but presumably including inhalation, oral and dermal
Target organ (or tumour type)	Leukaemia
Comment	Relevant environmental exposures also include infection-related risk factors

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## Residence near power lines

Situation	Residence near power lines
Exposure	Children
Carcinogen	Extremely low frequency electric & magnetic fields
Principal route of exposure	Irradiation
Target organ (or tumour type)	Leukaemia
Comment	Causality not established but reported associations cannot be discounted.

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Perineal use of talc-based body powder	Perineal use of talc-based body powder
Situation	Women using body powder
Exposure	Talc used in this manner
Carcinogen	Retrograde absorption via reproductive tract
Principal route of exposure	Ovary
Target organ (or tumour type)	Not supported by relevant experimental findings
Comment	<i>This information is based on peer review research published in the journal: B.W. Stewart, Banding carcinogenic risks in developed countries: A procedural basis for qualitative assessment, Mutat. Res.: Rev. Mutat. Res. (2008), doi:10.1016/j.mrrev.2007.11.007.</i>

This page was last updated on: Wednesday, November 18, 2015

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ASK THE EXPERT / 4 DECEMBER 2017

## Can cosmetics and toiletries cause cancer?

By Rachel Clark



Despite concerns about cosmetics, there are more effective ways to reduce cancer risk

Most studies have found no link between cancer and the chemicals used in cosmetic and toiletry products such as moisturisers, shampoos, deodorants and toothpastes.<sup>1</sup> The majority of countries have strict regulations to ensure these products are safe.

Some studies have found a link between talcum powder (talc) and ovarian cancer, but there's not enough evidence to be certain of this. Even if there were an increased risk, scientists estimate it would be small. Not smoking, followed by [maintaining a healthy weight](#) through [eating a healthy diet](#) and [keeping active](#), are the most effective ways to [reduce your cancer risk](#).

Read more answers to [frequently asked questions](#).

### References

<sup>1</sup>. World Cancer Research Fund UK. Myths and controversies about what causes cancer. 2017.

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4 December 2017

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Analysing research on cancer prevention and survival

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## Ovarian Cancer



*Most women who get ovarian cancer are not at high risk, but several factors may increase a woman's risk.*

There is no way to know for sure if you will get ovarian cancer. Most women get it without being at high risk. However, several factors may increase a woman's risk for ovarian cancer, including if you—

- Are middle-aged or older.
- Have close family members (such as your mother, sister, aunt, or grandmother) on either your mother's or your father's side, who have had ovarian cancer.
- Have a genetic mutation (abnormality) called BRCA1 or BRCA2, or one associated with Lynch syndrome.
- Have had breast, uterine, or colorectal (colon) cancer.
- Have an Eastern European or Ashkenazi Jewish background.
- Have endometriosis (a condition where tissue from the lining of the uterus grows elsewhere in the body).
- Have never given birth or have had trouble getting pregnant.

In addition, some studies suggest that women who take estrogen by itself (without progesterone) for 10 or more years may have an increased risk of ovarian cancer.

If one or more of these factors is true for you, it does not mean you will get ovarian cancer. But you should speak with your doctor about your risk. If you or your family have a history of ovarian cancer, speak to your doctor about genetic counseling.

Page last reviewed: February 9, 2017



# Ovarian Cancer Risk Factors

A risk factor is anything that changes your chance of getting a disease like cancer. Different cancers have different risk factors. Some risk factors, like smoking, can be changed. Others, like a person's age or family history, can't be changed.

But having a risk factor, or even many, does not mean that you will get the disease. And some people who get the disease may not have any known risk factors. Researchers have discovered several risk factors that might increase a woman's chance of developing *epithelial* ovarian cancer. These risk factors don't apply to other less common types of ovarian cancer like germ cell tumors and stromal tumors.

## Factors that increase your risk of ovarian cancers

### Getting older

The risk of developing ovarian cancer gets higher with age. Ovarian cancer is rare in women younger than 40. Most ovarian cancers develop after menopause. Half of all ovarian cancers are found in women 63 years of age or older.

### Being overweight or obese

Obesity has been linked to a higher risk of developing many cancers. The current information available for ovarian cancer risk and obesity is not clear. Obese women (those with a body mass index [BMI] of at least 30) may have a higher risk of developing ovarian cancer, but not necessarily the most aggressive types, such as high grade serous cancers. Obesity may also affect the overall survival of a woman with ovarian cancer.

### Having children later or never having a full-term pregnancy

Women who have their first full-term pregnancy after age 35 or who never carried a pregnancy to term have a higher risk of ovarian cancer.

## Using fertility treatment

Fertility treatment with in vitro fertilization (IVF) seems to increase the risk of the type of ovarian tumors known as "borderline" or "low malignant potential" (described in What Is Ovarian Cancer? (/cancer/ovarian-cancer/about/what-is-ovarian-cancer.html)). Other studies, however, have not shown an increased risk of invasive ovarian cancer with fertility drugs. If you are taking fertility drugs, you should discuss the potential risks with your doctor.

## Taking hormone therapy after menopause

Women using estrogens after menopause have an increased risk of developing ovarian cancer. The risk seems to be higher in women taking estrogen alone (without progesterone) for many years (at least 5 or 10). The increased risk is less certain for women taking both estrogen and progesterone.

## Having a family history of ovarian cancer, breast cancer, or colorectal cancer

Ovarian cancer can run in families. Your ovarian cancer risk is increased if your mother, sister, or daughter has (or has had) ovarian cancer. The risk also gets higher the more relatives you have with ovarian cancer. Increased risk for ovarian cancer can also come from your father's side.

A family history of some other types of cancer such as colorectal and breast cancer is linked to an increased risk of ovarian cancer. This is because these cancers can be caused by an inherited mutation (change) in certain genes that cause a family cancer syndrome that increases the risk of ovarian cancer.

## Having a family cancer syndrome

About 5 to 10% of ovarian cancers are a part of family cancer syndromes (/cancer/cancer-causes/genetics/family-cancer-syndromes.html) resulting from inherited changes (*mutations*) in certain genes.

## Heredity breast and ovarian cancer syndrome

This syndrome is caused by inherited mutations in the genes *BRCA1* and *BRCA2*, as well as possibly some other genes that have not yet been found. This syndrome is linked to a high risk of breast cancer (/cancer/breast-cancer.html) as well as ovarian, fallopian tube, and primary peritoneal cancers. The risk of some other cancers, such as pancreatic cancer (/cancer/pancreatic-cancer.html) and prostate cancer (/cancer/prostate-cancer.html), are also increased.

Mutations in *BRCA1* and *BRCA2* are also responsible for most inherited ovarian cancers. Mutations in *BRCA1* and *BRCA2* are about 10 times more common in those who are Ashkenazi Jewish than those in the general U.S. population.

The lifetime ovarian cancer risk for women with a *BRCA1* mutation is estimated to be between 35% and 70%. This means that if 100 women had a *BRCA1* mutation, between 35 and 70 of them would get ovarian cancer. For women with *BRCA2* mutations the risk has been estimated to be between 10% and 30% by age 70. These mutations also increase the risks for primary peritoneal carcinoma and fallopian tube carcinoma.

In comparison, the ovarian cancer lifetime risk for the women in the general population is less than 2%.

## **PTEN tumor hamartoma syndrome**

In this syndrome, also known as Cowden disease, people are primarily affected with thyroid problems, thyroid cancer, and breast cancer. Women also have an increased risk of endometrial and ovarian cancer. It is caused by inherited mutations in the *PTEN* gene.

## **Hereditary nonpolyposis colon cancer**

Women with this syndrome have a very high risk of colon cancer (/cancer/colon-rectal-cancer.html) and also have an increased risk of developing cancer of the uterus (endometrial cancer) and ovarian cancer. Many different genes can cause this syndrome. They include *MLH1*, *MLH3*, *MSH2*, *MSH6*, *TGFBR2*, *PMS1*, and *PMS2*. The lifetime risk of ovarian cancer in women with hereditary nonpolyposis colon cancer (HNPCC) is about 10%. Up to 1% of all ovarian epithelial cancers occur in women with this syndrome. Another name for HNPCC is Lynch syndrome.

## **Peutz-Jeghers syndrome**

People with this rare genetic syndrome develop polyps in the stomach and intestine while they are teenagers. They also have a high risk of cancer, particularly cancers of the digestive tract (esophagus, stomach, small intestine, colon). Women with this syndrome have an increased risk of ovarian cancer, including both epithelial ovarian cancer and a type of stromal tumor called *sex cord tumor with annular tubules* (SCTAT). This syndrome is caused by mutations in the gene *STK11*.

## **MUTYH-associated polyposis**

People with this syndrome develop polyps in the colon and small intestine and have a high risk of colon cancer. They are also more likely to develop other cancers, including cancers of the ovary and bladder (/cancer/bladder-cancer.html). This syndrome is caused by mutations in the gene *MUTYH*.

## **Having had breast cancer**

If you have had breast cancer, you might also have an increased risk of developing ovarian cancer. There are several reasons for this. Some of the reproductive risk factors for ovarian cancer may also affect breast cancer risk. The risk of ovarian cancer after breast cancer is highest in those women with a family history of

breast cancer. A strong family history of breast cancer may be caused by an inherited mutation in the *BRCA1* or *BRCA2* genes and hereditary breast and ovarian cancer syndrome, which is linked to an increased risk of ovarian cancer.

## Smoking and alcohol use

Smoking doesn't increase the risk of ovarian cancer overall, but it is linked to an increased risk for the mucinous type.

Drinking alcohol is not linked to ovarian cancer risk.

## Factors with unclear effects on ovarian cancer risk

### Androgens

Androgens, such as testosterone, are male hormones. There appears to be a link between certain androgens and specific types of ovarian cancer, but further studies of the role of androgens in ovarian cancer are needed.

### Talcum powder

It has been suggested that talcum powder might cause cancer in the ovaries if the powder particles (applied to the genital area or on sanitary napkins, diaphragms, or condoms) were to travel through the vagina, uterus, and fallopian tubes to the ovary.

Many studies in women have looked at the possible link between talcum powder and cancer of the ovary. Findings have been mixed, with some studies reporting a slightly increased risk and some reporting no increase. Many case-control studies have found a small increase in risk. But these types of studies can be biased because they often rely on a person's memory of talc use many years earlier. One prospective cohort study, which would not have the same type of potential bias, has not found an increased risk. A second found a modest increase in risk of one type of ovarian cancer.

For any individual woman, if there is an increased risk, the overall increase is likely to very be small. Still, talc is widely used in many products, so it is important to determine if the increased risk is real. Research in this area continues.

### Diet

Some studies have shown a reduced rate of ovarian cancer in women who ate a diet high in vegetables or a low fat diet, but other studies disagree. The American Cancer Society recommends eating a variety of healthful foods, with an emphasis on plant sources. Eat at least 2 ½ cups of fruits and vegetables every day, as well as several servings of whole grain foods from plant sources such as breads, cereals, grain products, rice, pasta, or beans. Limit the amount of red meat and processed meats you eat. Even though the effect of these dietary recommendations on ovarian cancer risk remains uncertain, following them can help prevent several other diseases, including some other types of cancer.

# Factors that can lower risk of ovarian cancer

## Pregnancy and breastfeeding

Women who have been pregnant and carried it to term before age 26 have a lower risk of ovarian cancer than women who have not. The risk goes down with each full-term pregnancy. Breastfeeding may lower the risk even further.

## Birth control

Women who have used oral contraceptives (also known as *birth control pills* or *the pill*) have a lower risk of ovarian cancer. The risk is lower the longer the pills are used. This lower risk continues for many years after the pill is stopped. Other forms of birth control such as tubal ligation (having fallopian tubes tied) and short use of IUDs (intrauterine devices) have also been associated with a lower risk of ovarian cancer.

A hysterectomy (removing the uterus without removing the ovaries) also seems to reduce the risk of getting ovarian cancer by about one-third.

Written by

References

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The American Cancer Society medical and editorial content team (/cancer/acs-medical-content-and-news-staff.html)

Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

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# MORE IN OVARIAN CANCER

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## About Ovarian Cancer

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## Causes, Risk Factors, and Prevention

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## Early Detection, Diagnosis, and Staging

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## Treatment

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## After Treatment

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# Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention (PDQ®)-Patient Version

[Go to Health Professional Version](#)

## What is prevention?

Cancer prevention is action taken to lower the chance of getting cancer. By preventing cancer, the number of new cases of cancer in a group or population is lowered. Hopefully, this will lower the number of deaths caused by cancer.

To prevent new cancers from starting, scientists look at risk factors and protective factors. Anything that increases your chance of developing cancer is called a cancer risk factor; anything that decreases your chance of developing cancer is called a cancer protective factor.

Some risk factors for cancer can be avoided, but many cannot. For example, both smoking and inheriting certain genes are risk factors for some types of cancer, but only smoking can be avoided. Regular exercise and a healthy diet may be protective factors for some types of cancer. Avoiding risk factors and increasing protective factors may lower your risk but it does not mean that you will not get cancer.

Different ways to prevent cancer are being studied, including:

- Changing lifestyle or eating habits.
- Avoiding things known to cause cancer.
- Taking medicines to treat a precancerous condition or to keep cancer from starting.

## General Information About Ovarian, Fallopian Tube, and Primary Peritoneal Cancer

### KEY POINTS

- Ovarian, fallopian tube, and primary peritoneal cancers are diseases in which malignant (cancer) cells form in the ovaries, fallopian tubes, or peritoneum.
- Ovarian cancer is the leading cause of death from cancer of the female reproductive system.

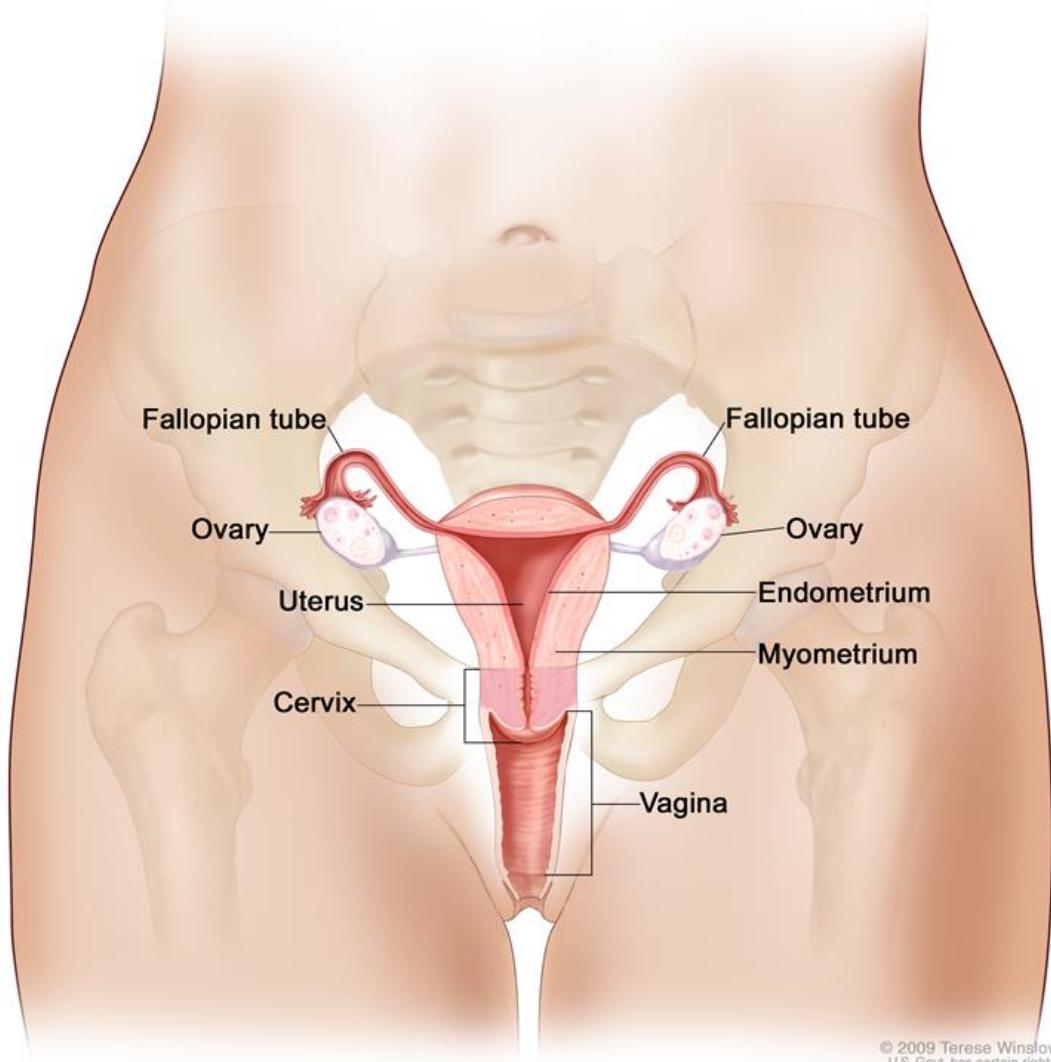
## Ovarian, fallopian tube, and primary peritoneal cancers are diseases in which malignant (cancer) cells form in the ovaries, fallopian tubes, or peritoneum.

The ovaries are a pair of organs in the female reproductive system. They are in the pelvis, one on each side of the uterus (the hollow, pear-shaped organ where a fetus grows). Each ovary is about the size and shape of an almond. The ovaries make eggs and female hormones (chemicals that control the way certain cells or organs work in the body).

The fallopian tubes are a pair of long, slender tubes, one on each side of the uterus. Eggs pass from the ovaries, through the fallopian tubes, to the uterus. Cancer sometimes begins at the end of the fallopian tube near the ovary and spreads to the ovary.

The peritoneum is the tissue that lines the abdominal wall and covers organs in the abdomen. Primary peritoneal cancer is cancer that forms in the peritoneum and has not spread there from another part of the body. Cancer sometimes begins in the peritoneum and spreads to the ovary.

### **Female Reproductive System**



**Anatomy of the female reproductive system. The organs in the female reproductive system include the uterus, ovaries, fallopian tubes, cervix,**

Ovarian, Fallopian Tube, & Primary Peritoneal Cancer Prevention (PDQ)–Patient Version | National Cancer Institute  
26300  
and vagina. The uterus has a muscular outer layer called the myometrium and an inner lining called the endometrium.

## Ovarian cancer is the leading cause of death from cancer of the female reproductive system.

Ovarian cancer is most common in postmenopausal women. New cases of ovarian cancer and deaths from ovarian cancer are higher among white women than black women, but have decreased in both groups.

Women who have a family history of ovarian cancer and/or certain inherited gene changes, such as BRCA1 or BRCA2 gene changes, have a higher risk than women who do not have a family history or who have not inherited these gene changes. For women with inherited risk, genetic counseling and genetic testing can be used to find out more about how likely they are to develop ovarian cancer.

It is hard to find ovarian cancer early. Early ovarian cancer may not cause any symptoms. When symptoms do appear, ovarian cancer is often advanced.

See the following PDQ summaries for more information about ovarian, fallopian tube, and primary peritoneal cancers:

- [Genetics of Breast and Gynecologic Cancers](#) (written for health professionals)
- [Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Screening](#)
- [Ovarian Epithelial, Fallopian Tube, and Primary Peritoneal Cancer Treatment](#)

## Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention

### KEY POINTS

- Avoiding risk factors and increasing protective factors may help prevent cancer.
- The following are *risk* factors for ovarian, fallopian tube, and primary peritoneal cancer:
  - Family history of ovarian, fallopian tube, and primary peritoneal cancer
  - Inherited risk
  - Hormone replacement therapy
  - Weight and height
  - Endometriosis
- The following are *protective* factors for ovarian, fallopian tube, and primary peritoneal cancer:
  - Oral contraceptives
  - Tubal ligation
  - Giving birth
  - Salpingectomy

- Breastfeeding
- Risk-reducing salpingo-oophorectomy
- It is not clear whether the following affect the risk of ovarian, fallopian tube, and primary peritoneal cancer:
  - Diet
  - Alcohol
  - Aspirin and non-steroidal anti-inflammatory drugs
  - Talc
  - Infertility treatment
- Cancer prevention clinical trials are used to study ways to prevent cancer.
- New ways to prevent ovarian, fallopian tube, and primary peritoneal cancer are being studied in clinical trials.

## **Avoiding risk factors and increasing protective factors may help prevent cancer.**

Avoiding cancer risk factors may help prevent certain cancers. Risk factors include smoking, being overweight, and not getting enough exercise. Increasing protective factors such as quitting smoking and exercising may also help prevent some cancers. Talk to your doctor or other health care professional about how you might lower your risk of cancer.

## **The following are *risk factors* for ovarian, fallopian tube, and primary peritoneal cancer:**

### **Family history of ovarian, fallopian tube, and primary peritoneal cancer**

A woman whose mother or sister had ovarian cancer has an increased risk of ovarian cancer. A woman with two or more relatives with ovarian cancer also has an increased risk of ovarian cancer.

### **Inherited risk**

The risk of ovarian cancer is increased in women who have inherited certain changes in the BRCA1, BRCA2, or other genes.

The risk of ovarian cancer is also increased in women who have certain inherited syndromes that include:

- Familial site-specific ovarian cancer syndrome.
- Familial breast/ovarian cancer syndrome.
- Hereditary nonpolyposis colorectal cancer (HNPCC; Lynch syndrome).

### **Hormone replacement therapy**

There is a slightly increased risk of ovarian cancer in women who are taking hormone replacement therapy (HRT) after menopause. There is also an increased risk of ovarian cancer in women who have recently used HRT, even if they used it for less than 5 years. The risk of ovarian cancer is the same for HRT with estrogen only or with combined estrogen and progestin. When HRT is stopped, the risk of ovarian cancer decreases over time. The risk of ovarian cancer is not affected by the age of the woman when taking HRT.

## Weight and height

Being overweight or obese is linked to an increased risk of ovarian cancer. Being obese is also linked to an increased risk of death from ovarian cancer. Being tall may also be linked to a slight increase in the risk of ovarian cancer.

## Endometriosis

Women who have endometriosis have an increased risk of ovarian cancer.

## The following are *protective factors* for ovarian, fallopian tube, and primary peritoneal cancer:

### Oral contraceptives

Taking oral contraceptives ("the pill") lowers the risk of ovarian cancer. The longer oral contraceptives are used, the lower the risk may be. The decrease in risk may last up to 30 years after a woman has stopped taking oral contraceptives.

Taking oral contraceptives increases the risk of blood clots. This risk is higher in women who also smoke.

### Tubal ligation

The risk of ovarian cancer is decreased in women who have a tubal ligation (surgery to close both fallopian tubes).

### Giving birth

Women who have given birth have a decreased risk of ovarian cancer compared to women who have not given birth. Giving birth to more than one child further decreases the risk of ovarian cancer.

### Salpingectomy

Some studies have shown that salpingectomy (surgery to remove one or both fallopian tubes) is linked with a decreased risk of ovarian cancer. When both fallopian tubes are removed, the risk of ovarian cancer is lowered more than when one fallopian tube is removed.

### Breastfeeding

Breastfeeding is linked to a decreased risk of ovarian cancer. The longer a woman breastfeeds, the lower her risk of ovarian cancer. Women who breastfeed for at least 8 to 10 months have the greatest decrease in risk of ovarian cancer.

### Risk-reducing salpingo-oophorectomy

Some women who have a high risk of ovarian cancer may choose to have a risk-reducing salpingo-oophorectomy (surgery to remove the fallopian tubes and ovaries when there are no signs of cancer). This includes women who have inherited certain changes in the *BRCA1* and *BRCA2* genes or have an inherited syndrome. (See the [Risk-reducing salpingo-oophorectomy \(RRSO\)](#) section in the PDQ health professional summary on [Genetics of Breast and Gynecologic Cancers](#) for more information.)

It is very important to have a cancer risk assessment and counseling before making this decision. These and other factors may be discussed:

- Infertility.
- Early menopause: The drop in estrogen levels caused by removing the ovaries can cause early menopause. Symptoms of menopause include the following:
  - Hot flashes.
  - Night sweats.
  - Trouble sleeping.
  - Mood changes.
  - Decreased sex drive.
  - Heart disease.
  - Vaginal dryness.
  - Frequent urination.
  - Osteoporosis (decreased bone density).

These symptoms may not be the same in all women. Hormone replacement therapy (HRT) may be used to lessen these symptoms.

- Risk of ovarian cancer in the peritoneum: Women who have had a risk-reducing salpingo-oophorectomy continue to have a small risk of ovarian cancer in the peritoneum (thin layer of tissue that lines the inside of the abdomen). This is rare, but may occur if ovarian cancer cells had already spread to the peritoneum before the surgery or if some ovarian tissue remains after surgery.

## **It is not clear whether the following affect the risk of ovarian, fallopian tube, and primary peritoneal cancer:**

### **Diet**

Studies of dietary factors have not found a strong link to ovarian cancer.

### **Alcohol**

Studies have not shown a link between drinking alcohol and the risk of ovarian cancer.

### **Aspirin and non-steroidal anti-inflammatory drugs**

Some studies of aspirin and non-steroidal anti-inflammatory drugs (NSAIDs) have found a decreased risk of ovarian cancer and others have not.

### **Talc**

Studies of women who used talcum powder (talc) dusted on the perineum (the area between the vagina and the anus) have not found clear evidence of an increased risk of ovarian cancer.

### **Infertility treatment**

Overall, studies in women using fertility drugs have not found clear evidence of an increased risk of ovarian cancer. The risk of invasive ovarian cancer may be higher in women who do not get pregnant after taking fertility drugs.

## Cancer prevention clinical trials are used to study ways to prevent cancer.

Cancer prevention clinical trials are used to study ways to lower the risk of developing certain types of cancer. Some cancer prevention trials are conducted with healthy people who have not had cancer but who have an increased risk for cancer. Other prevention trials are conducted with people who have had cancer and are trying to prevent another cancer of the same type or to lower their chance of developing a new type of cancer. Other trials are done with healthy volunteers who are not known to have any risk factors for cancer.

The purpose of some cancer prevention clinical trials is to find out whether actions people take can prevent cancer. These may include eating fruits and vegetables, exercising, quitting smoking, or taking certain medicines, vitamins, minerals, or food supplements.

## New ways to prevent ovarian, fallopian tube, and primary peritoneal cancer are being studied in clinical trials.

Information about clinical trials supported by NCI can be found on NCI's [clinical trials search](#) webpage. Clinical trials supported by other organizations can be found on the [ClinicalTrials.gov](#) website.

## About This PDQ Summary

### About PDQ

Physician Data Query (PDQ) is the National Cancer Institute's (NCI's) comprehensive cancer information database. The PDQ database contains summaries of the latest published information on cancer prevention, detection, genetics, treatment, supportive care, and complementary and alternative medicine. Most summaries come in two versions. The health professional versions have detailed information written in technical language. The patient versions are written in easy-to-understand, nontechnical language. Both versions have cancer information that is accurate and up to date and most versions are also available in [Spanish](#).

PDQ is a service of the NCI. The NCI is part of the National Institutes of Health (NIH). NIH is the federal government's center of biomedical research. The PDQ summaries are based on an independent review of the medical literature. They are not policy statements of the NCI or the NIH.

### Purpose of This Summary

This PDQ cancer information summary has current information about ovarian, fallopian tube, and primary peritoneal cancer prevention. It is meant to inform and help patients, families, and caregivers. It does not give formal guidelines or recommendations for making decisions about health care.

### Reviewers and Updates

Editorial Boards write the PDQ cancer information summaries and keep them up to date. These Boards are made up of experts in cancer treatment and other specialties related to cancer. The summaries are reviewed regularly and changes are made when there is new information. The date on each summary ("Updated") is the date of the most recent change.

The information in this patient summary was taken from the health professional version, which is reviewed regularly and updated as needed, by the [PDQ Screening and Prevention Editorial Board](#).

## Clinical Trial Information

A clinical trial is a study to answer a scientific question, such as whether one treatment is better than another. Trials are based on past studies and what has been learned in the laboratory. Each trial answers certain scientific questions in order to find new and better ways to help cancer patients. During treatment clinical trials, information is collected about the effects of a new treatment and how well it works. If a clinical trial shows that a new treatment is better than one currently being used, the new treatment may become "standard." Patients may want to think about taking part in a clinical trial. Some clinical trials are open only to patients who have not started treatment.

Clinical trials can be found online at [NCI's website](#). For more information, call the [Cancer Information Service](#) (CIS), NCI's contact center, at 1-800-4-CANCER (1-800-422-6237).

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## Disclaimer

The information in these summaries should not be used to make decisions about insurance reimbursement. More information on insurance coverage is available on Cancer.gov on the [Managing Cancer Care](#) page.

## Contact Us

More information about contacting us or receiving help with the Cancer.gov website can be found on our [Contact Us for Help](#) page. Questions can also be submitted to Cancer.gov through the website's [E-mail Us](#).

**Updated:** March 27, 2019

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## Talcum powder and ovarian cancer

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### Is there a link between ovarian cancer and talcum powder?

There have been worries for some years that using talcum powder on the genital area may increase the risk of

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women with and without ovarian cancer if they have used talc.

In 2003 the results of 16 studies involving 12,000 women showed that using talc increased the risk of ovarian cancer by around a third. A 2013 review of American studies involving 18,000 women had similar results for genital talcum powder use (but not general use).

There are uncertainties around these results. There was no consistent evidence to prove that the more you use talc, the greater your risk of ovarian cancer. If talc really does cause ovarian cancer, why didn't all the studies show that the risk of ovarian cancer was related to the amount of talc used?

Studies of this type involving women who already have ovarian cancer can suffer from bias, which can lead to inaccurate results. For example, women with ovarian cancer understandably look for a cause for their disease and may have been more likely to remember using talc than those who did not have cancer.

## Mountcastle Massive

We are raising money for Ovacome, who provide support and information to those affected by ovarian cancer. A cause close to our hearts. I hope that you'll consider contributing towards their work.

## Related

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A link with serous ovarian cancer was again suggested by a study in Australia in 2008, but the small (less than one fifth) increase was only just considered to be relevant.

The Australian study showed that the risk for women who used talc was not increased in those women who had not had their fallopian tubes blocked in order to have a sterilisation. This is odd because you would expect tubes that were not blocked to increase any real risk from talc, as they would allow the talc to reach the ovaries along the same route as sperm travels to allow pregnancy.

In 2007, a combined analysis of nine studies looking at talc from contraceptive diaphragms (caps) failed to show any link between talc and ovarian cancer. This is reassuring, because you might expect that putting a diaphragm that has talc on it into the vagina might mean the ovaries are exposed to higher concentrations of talc, rather than simply applying it to the genital area.

### Just diagnosed?

When you are first diagnosed with ovarian cancer it is only natural to feel frightened and worried about the future. Some women want to find out as much as possible about the disease as soon as they can; others prefer to seek information at a gentler pace.



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increases the risk of oesophageal cancer by 30 times.

Ovarian cancer is a rare disease, and increasing a small risk by a third still gives a small risk.

### Is there any other evidence?

The other evidence that using talc is associated with ovarian cancer comes from studies which have shown talc in the ovaries of women with the disease.

There is also doubt about the significance of these studies because:

- not all studies ruled out the possibility that the talc came from the protective gloves worn by the scientists examining the ovaries, rather than from talc applied to the genital area;
- only a small number of samples were studied;
- talc was found in normal ovaries as well as cancerous ones; and
- finding talc in a patient with ovarian cancer is not the same as proving that the talc caused the cancer.



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cancer. In theory, it is possible that any substance that reduces levels of MUC1 could somehow increase a woman's risk of ovarian cancer.

However, this weak link between talc and ovarian cancer is just speculation at the moment. With no convincing results from research studies, it is hard to imagine that talc is a significant cause of ovarian cancer.

Second, a recent study in the US found that variations in certain genes responsible for neutralising toxins from the environment might influence whether or not talc increased a person's risk of ovarian cancer.

However, the effect seen was not very large, and needs to be confirmed in further studies.

## What we know

We still do not know what really causes ovarian cancer. But it is likely to be a combination of many different inherited and environmental factors, rather than one cause such as talc. It is also important to remember that, out



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unlikely that using talc was the reason they developed the cancer.

More studies will be needed to work out exactly whether or not using talc causes ovarian cancer.

If you would like more information on the sources and references for this fact sheet, please call us on 0800 008 7054.

If you would like to discuss anything about ovarian cancer, please phone our supportline on 0800 008 7054 Monday to Friday between 10am and 5pm.

*Reviewed by Dr Adam Rosenthal,  
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Date last updated May 2018

Date for review May 2020

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